

5/005 -0-7/87

U.S. Environmental Protection Agency
CLP Sample Management Office
P. O. Box 818, Alexandria, Virginia 22313
PHONE: (703)/557-2490 or FTS/557-2490

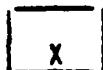
HADER GW CONTAMINATION
MND 981 961 873
Chloride in Water 7/30/87

QUALITY ASSURANCE BRANCH

SAS Number
DEC 2 1987

SPECIAL ANALYTICAL SERVICES
Client Request

ENVIRONMENT SERVICES DIVISION
Approved For Scheduling

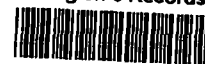


Regional Transmittal



Telephone Request

EPA Region 5 Records Ctr.



387662

A. EPA Region/Client: Region V
B. RSCC Representative: Dennis Wesolowski
C. Telephone Number: (312) 886-1971
D. Date of Request: 11-25-87
E. Site Name: Hader Ground Water Contamination EPA ID# MND 981961873

Please provide below a description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability for your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

1. General description of analytical service requested: Analysis of chloride in
water (surface waters, groundwater, drinking water, leachate, etc.). Samples will be
unfiltered. This SAS is meant for routine monitoring of waters at a waste site. A
A companion SAS is available for more precise, accurate, and sensitive chloride measure-
ments in water. Results are reported as mg/l Cl.

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):

10 Fraction - inorganic - aqueous - low

3. Purpose of analysis (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.):

Superfund Site Inspection

4. Estimated date(s) of collection: week of 1-14-87
5. Estimated date(s) and method of shipment: Daily by overnight carrier
6. Number of days analysis and data required after laboratory receipt of samples:
30
7. Analytical protocol required (attach copy if other than a protocol currently used in this program):
1. EPA Method 325.1 (Colorimetric, Automated Ferricyanide, AA-I) 1983ed., or
 2. EPA Method 325.2 (Colorimetric, Automated Ferricyanide, AA-II) 1983ed., or
Note: A Region V CRL Auto Analyzer Manifold is attached for Method 325.2 to correct errors in Method 325.2's manifold diagram.
 3. ASTM Colorimetric Method (Manual Method) -ASTM D 512C-81, or
 4. Method 407C (Potentiometric Titration) Standard Methods, 16th ed. Samples will be kept at 4°C until analysis and validation of results.
8. Special technical instruction (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):
For colorimetric methods (1) use a standard curve between 0 and 300 mg/l or less, (2) the calibration curve must include 5 points or more (including a zero concentration standard), and (3) samples with absorbances or peak heights greater than highest standard must be diluted and reanalyzed. For titrimetric method 1) use either 0.0141 or 0.025 N titrant, 2) automated potentiometric titrators are acceptable, 3) do not use more than 20 ml titrant for 50 ml or 100 ml sample aliquots, 4) dilute and reanalyze any sample aliquots requiring more than 20 ml titrant, 5) remove any interfering chromate, ferric iron, sulfide, and sulfite, and 6) standardize titrants daily. Obtain approval of CPMS, CRL prior to use of any other method.
9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.
The test procedure used will be clearly identified. For the colorimetric methods, bench records tabulating order of calibration standards, verification and control standards, samples, matrix spikes, titrant blanks, etc. with resulting peak height, concentration, or absorbance read-outs will be provided with copies of worksheets used to calculate results. For the titration method, any potentiometric titration curves and all bench records tabulating titrant standardization, samples, aliquot volumes, matrix spikes, etc. will be provided. Records of titrant standardization and titrant blanks will be provided. A photocopy of instrument readouts, i.e. strip charts, printer tapes, etc. must be included for all analyses. All records of analysis and calculations must be legible and sufficient to recalculate all sample concentrations and QA audit results. EPA QC reference samples, or any other reference sample or initial calibration verification, will be identified as to source, lot number, and sample number. Corresponding "true" or target values and associated 95% confidence limits for analysis results will be provided for all reference samples used.
10. Other (use additional sheets or attach supplementary information, as needed):
1. Name of sampling/shipping contact: David Kovalsky
- Phone: 612 / 296-7735

3.

I. DATA REQUIREMENTS

<u>Parameter:</u>	<u>Detection Limit</u>	<u>Precision Desired (+/- % or Conc.)</u>
<u>Chloride</u>	<u>5 mg/l</u>	<u>Differences in duplicate sample results are to be <5 mg/l for concentrations <50 mg/l and are to be < 10% for concentrations exceeding 50 mg/l. The significant figures to report depend on sen- sitivity of colorimetric curve or number of signifi- cant figures in titrant volume.</u>
<u>Note: These are minimum requirements</u>		
<u>Report actual detection limit used,</u>		
<u>based on allowable methodology options.</u>		

II. QC REQUIREMENTS - Do not use designated field blanks for QA Audits.

<u>Audits Required</u>	<u>Frequency of Audits</u>	<u>Limits* (% or Conc.)</u>
a) For Methods 325.1, 325.2, and ASTM D 512C		
<u>Matrix Spike*</u>	<u>1 per group of 10 or fewer samples</u>	<u>85 - 115% Recovery</u>
<u>Lab Duplicate</u>	<u>" "</u>	<u>+/- (10% or 5 mg/l)</u>
<u>Lab Blank</u>	<u>" "</u>	<u><5 mg/l</u>
<u>Calibration Verification Std.</u>	<u>" "</u>	<u>90-110% Recovery</u>
<u>1 Set of EPA QC Mineral Ref.</u>	<u>1 per sample set</u>	<u>85-115% Recovery</u>
<u>Samples - 2 Concentrates</u>		
b) For Method 407C		
<u>Same as Item Iia for Matrix Spike*, Lab Duplicate, and QC Mineral Reference Samples.</u>	<u>Beginning and end of sample set</u>	<u>-3 to +3 mg/l</u>
<u>Lab Blank (Not Titration Blank)</u>	<u>At end of sample set</u>	<u>95 - 105% Recovery</u>
<u>Calibration verification</u>	<u>At end of sample set</u>	
<u>Standard (Same as Titrant Standardization)</u>		

*Matrix spike concentrations will be greater than 30% of the sample concentration, but spiked sample shall not exceed the working range of the standard curve or titration.

II. ACTION REQUIRED IF LIMITS ARE EXCEEDED:

Take corrective action and reanalyze samples - Contact Jay Thakkar (312) 886-1972
or Charles T. Elly (312) 353-9087.

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions or need any assistance, please call the Sample Management Office.

5/011_-0-7/87

Sulfate in Water July 30, 1987

U.S. Environmental Protection Agency
LP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313
PHONE: (703)/557-2490 or FTS/557-2490

QUALITY ASSURANCE BRANCH
SAS Number
DEC 2 1987

SPECIAL ANALYTICAL SERVICES
Client Request

Approved ENVIRONMENT SERVICES DIVISION

☒ Regional Transmittal ☐ Telephone Request

A. EPA Region/Client: Region V
B. RSCC Representative: Dennis Wesolowski
C. Telephone Number: (312) 886-1971
D. Date of Request: 11-25-87
E. Site Name: Hader Groundwater Contamination EPA ID # MND 981961873

Please provide below a description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability for your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

1. General description of analytical service requested: Analysis for sulfate in water
(surface water, groundwater, drinking water, leachate, etc.). Samples will be unfiltered.
Results are reported as mg/l SO₄.

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):

10, Fraction inorganic aqueous Low

3. Purpose of analysis (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.):

Superfund Site Inspection

4. Estimated date(s) of collection: week of 1-14-87
5. Estimated date(s) and method of shipment: overnight carrier Daily
6. Number of days analysis and data required after laboratory receipt of samples:
30
7. Analytical protocol required (attach copy if other than a protocol currently used in this program):
1. EPA Method 375.2 (Colorimetric Methylthmol Blue) - 1983 ed.
- Note: This method requires 0.75 mg/l SO_4 in Dilution Water (See Reagent Section 6.8)
 2. Method 426C of Standard Methods, 16th ed. (Turbidimetric)
- Note; this last method provides for measurement of sulfate using 2 standard curves- 1 for sulfate concentrations between 0 and 10mg/l, and 1 between 10 and 40 mg/l sulfate.
- Samples will be kept at 4°C until validation of results.
8. Special technical instruction (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):
Sample holding time is not to exceed 28 days from date of sample collection. Sulfate standards will be prepared daily from stock solution. Samples with absorbances or turbidities greater than that in the highest standard will be diluted and rerun. For Method 426C, 1) the reanalysis solution should contain between 20 and 40 mg/l sulfate, and 2) concentrations must be corrected for background turbidity and color per Section 5d of Method 426C using pH adjusted sample aliquots. Use only the methods specified. Calibration curves must include at least 6 points (including a zero concentration standard) for Method 375.2 and Buffer A of Method 426C.
9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.
The test procedure used must be clearly identified. Results shall be reported as mg/l SO_4 . Bench records tabulating the order of calibration standards, lab control standards, lab blanks, samples, spikes, etc., with resulting absorbances or concentration readouts, will be provided along with copies of worksheets used to calculate results. Background absorbances used for turbidity corrections must be tabulated for each sample aliquot tested. A photocopy of the instrument readout (ie. strip charts, printer tapes, etc.) must be included. All records of analysis must be legible and sufficient to calculate all concentrations and results. EPA QC reference samples, or any other reference sample or initial calibration verification, will be identified as to source, lot number, and sample number. Corresponding "true" or target values and associated 95% confidence limits for analysis results will be provided for all reference samples used.
10. Other (use additional sheets or attach supplementary information, as needed):
11. Name of sampling/shipping contact: David J. Koubsky
Phone: 612/ 296-7735

I. DATA REQUIREMENTS

<u>Parameter:</u>	<u>Detection Limit</u>	<u>Precision Desired</u> (+% or Conc.)
<u>Sulfate</u>	<u>5 mg/l</u>	<u>Method 375.2:</u> Differences in duplicate sample results are to be < 5 mg/l for concentrations < 50 mg/l, and < 10% for concentrations > 50 mg/l.
		<u>Method 426 C:</u> Differences in duplicate sample results are to be < 2 mg/l for concentrations < 20 mg/l and < 10% for concentrations > 20 mg/l in aliquot tested.
<u>Note: These are minimum requirements. Report the actual detection limits used based on allowable methodology options.</u>		

II. QC REQUIREMENTS - Do not use designated field blanks for QA audits.

<u>Audits Required</u>	<u>Frequency of Audits</u>	<u>Limits* (% or Conc.)</u>
<u>Matrix Spike*</u>	<u>1 per group of 10 or fewer samples</u>	<u>85-115%</u>
<u>Lab Duplicate</u>	<u>" "</u>	<u>+ (10% or 5 mg/l) for Method 375.2</u> <u>+ (10% or 2 mg/l) for Method 426C</u>
<u>Lab Blank (0 mg/l SO₄)</u>	<u>" "</u>	<u>< 5 mg/l - Method 375.2</u> <u>-2 to +2mg/l-Buffer B of Method 426C or</u>
<u>Lab Blank (10 mg/l SO₄)</u>	<u>" "</u>	<u>8 to 10mg/l - Buffer A of Method 426C</u>
<u>Calibration Verification Standard</u>	<u>1 per group of 10 samples and at end of sample set</u>	<u>90 - 110%</u>
<u>1 Set of EPA QC Mineral Reference Samples</u>	<u>once per sample set</u>	<u>85-115% for each concentration.</u>

*Matrix spike concentrations will be greater than 30% of sample concentrations, but spiked samples shall not exceed working range of standard curve.

III. ACTION REQUIRED IF LIMITS ARE EXCEEDED:

Take corrective action and reanalyze samples.

Contact Jay Thakkar (312) 886-1972 or Chuck Elly (312) 353-9087.

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions or need any assistance, please call the Sample Management Office.

5/014 -0-6/87

Nitrate/nitrite 6/29/87

U.S. Environmental Protection Agency
CLP Sample Management Office
P.O. Box 818, Alexandria, Virginia 22313
PHONE: (703)/557-2490 or FTS/557-2490

QUALITY ASSURANCE BRANCH
SAS Number
DEC 2 1987

APPROVED ENVIRONMENTAL SERVICES DIVISION

SPECIAL ANALYTICAL SERVICES
Client Request

☒ Regional Transmittal ☐ Telephone Request

A. EPA Region/Client: Region V
B. RSCC Representative: Dennis Wesolowski
C. Telephone Number: 312/886-1971
D. Date of Request: 11-25-87
E. Site Name: Hader Groundwater Contamination EPA ID# MND981961873

Please provide below a description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability for your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

1. General description of analytical service requested: Analysis of nitrate plus nitrite
(as mg/l N) in water (surface water ground water, drinking water, leachates, etc.)
Samples will be unfiltered.

2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):

10 - ~~frac~~ whole - aqueous, Low

3. Purpose of analysis (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.):

Superfund Site Inspection

4. Estimated date(s) of collection: week of 1-14-87
5. Estimated date(s) and method of shipment: Daily by overnight carrier
6. Number of days analysis and data required after laboratory receipt of samples:
30
7. Analytical protocol required (attach copy if other than a protocol currently used in this program):
- 1) EPA Method 353.1 (colorimetric, automated hydrazine reduction).
 - 2) EPA Method 353.2 (colorimetric, automated cadmium reduction).
 - 3) EPA Method 353.3 (colorimetric, manual cadmium reduction).
- For all methods:
Samples will be stored at 4°C until analysis and validation of results. Samples will be preserved in the field with sulfuric acid (1 ml/l) to pH<2. The analytical working range shall not exceed 0.1 to 10.0 mg/l N.
- For Methods 353.2 or 353.3: If more than one reduction column is used separate calibrations, QA audits, and records are required for each column. The column used must be identified for each analytical result.
8. Special technical instruction (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):
Analyze the samples within 28 days after collection. Check the sample pH (wide range pH paper is acceptable). If the pH>2 contact CPMS, CRL for instructions. Use only the methods specified in item 7. Obtain approval of CPMS, CRL before using any other method.
For Methods 353.2 and 353.3: After checking the pH it is recommended that the laboratory check for residual chlorine (or oxidizing reagents) and sulfide using test strips such as starch iodide and lead acetate papers. Contact CPMS, CRL if these interferences are present; however, the laboratory must remove these interferences prior to analysis. The laboratory must also minimize interferences due to metals in order to prolong column life. (See Section 7.1.2 of method 353.3) It is suggested that the laboratory may dilute samples up to ten-fold prior to analysis (Section 7.4 of Method 353.3) provided that the final analytical working range does not exceed 0.1 to 10.0 mg/l N.
For all methods: Neutralize samples to pH 5-9 (or to phenolphthalein color end-point) prior to analysis. Dilute and reanalyze the neutralized samples if the concentrations exceed that of the highest standard. Use at least five calibration standards (including a zero standard). Prepare the lab blank using 1 ml of H₂SO₄/l. Neutralize and analyze it like a sample.
9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion:
The test procedure used must be clearly identified. Bench records tabulating the order of calibration standards, lab control standards, lab blanks, samples, spikes, duplicates, etc., with resulting absorbances or concentration readouts will be provided. Worksheets used to calculate results will be included. Any sample treatment to remove interferences will be documented. The laboratory shall submit photocopies of the instrument readout (strip-charts, printer tapes, etc.) All records of analysis and calculations must be legible and sufficient to recalculate all concentrations. Results are to be reported as mg N/l.
EPA QC reference samples, or any other reference sample or initial calibration verification, will be identified as to source, lot number, and sample number. Corresponding "true" or target values and associated 95% confidence limits for analysis results will be provided for all reference samples used.
10. Other (use additional sheets or attach supplementary information, as needed):
11. Name of sampling/shipping contact: DAVID Koubsky
- Phone: 612 296 7735

I. DATA REQUIREMENTS

<u>Parameter:</u>	<u>Detection Limit</u>	<u>Precision Desired</u> (+/- % or Conc.)
<u>Nitrate + Nitrite</u>	<u>0.10 mg/l as N</u>	<u>Duplicate results must be within 10% for concentrations >1mg/l or within 0.1 mg/l for concentrations < 1mg/l</u> <u>Results will be reported to the nearest 0.1 mg/l for conc. less than 1.0 mg/l and to 2 significant figures for conc. exceeding 1 mg/l-N.</u>
<u>Note: These are minimum requirements. Report actual detection limits used based on allowable methodology options.</u>		

II. QC REQUIREMENTS - Do not use any designated field blanks for QA audits.

<u>Audits Required</u>	<u>Frequency of Audits</u>	<u>Limits* (% or Conc.)</u>
<u>Matrix Spike*</u>	<u>1 per group of 10 or fewer samples</u>	<u>85% - 115%</u>
<u>Lab Duplicate</u>	<u>1 per group of 10 or fewer samples</u>	<u>±(10% - or 0.10 mg/l)</u>
<u>Lab Blank (1ml/l H₂SO₄)</u>	<u>2 per sample set</u>	<u><0.1 mg/l</u>
<u>Calibration verification standard</u>	<u>1 per group of 10 or fewer samples and at end of run</u>	<u>90% - 110%</u>
<u>Calibration blank</u>	<u>1 per group of 10 samples or less</u>	<u>< 0.1 mg/l</u>
<u>1 set of EPA Nutrient QC reference samples-conc. 1 and 2, or EPA F/NO₃ QC sample, WS series Conc. 1 and 2</u>	<u>1 per sample set</u>	<u>85% - 115%</u>

*Matrix spike concentrations will be 30% or larger, of sample concentrations, but spiked samples should not exceed working concentration range of standard curve.

III. ACTION REQUIRED IF LIMITS ARE EXCEEDED:

Take corrective action and reanalyze samples. Contact Jay Thakkar (312) 886-1972
or Chuck Elly (312) 353-9087.

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions need any assistance, please call the Sample Management Office.

5/003_-0-6/87

Alk. acid/pH 6/29/87

U.S. Environmental Protection Agency
CLP Sample Management Office
P. O. Box 818, Alexandria, Virginia 22313
PHONE: (703)/557-2490 or FTS/557-2490

SAS Number	ASSURANCE BRANCH
DEC 9 1987	

SPECIAL ANALYTICAL SERVICES
Client Request

Approved For Scheduling
ENVIRONMENTAL SERVICES DIVISION

☒

Regional Transmittal

☐

Telephone Request

- A. EPA Region/Client: Region V
- B. RSCC Representative: Dennis Wesolowski
- C. Telephone Number: 312/886-1971
- D. Date of Request: 11-25-87
- E. Site Name: HAZAR Groundwater contamination EPA ID # MND981961873

Please provide below a description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability for your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

1. General description of analytical service requested: Analysis for alkalinity, acidity
(if necessary), and pH in waters (surface waters, groundwaters, drinking waters, leach-
ates, etc.). Samples will be unfiltered. Determine alkalinity and pH first. Only those
samples with pH values less than or equal to 5.0 or alkalinity values less than or equal
to 20 mg/l CaCO₃ will be tested for acidity. Use attached SAS for acidity (titration
after hydrogen peroxide addition and boiling), if any such determinations are required.
Report alkalinity and acidity as mg/l CaCO₃.
2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):
10 Fraction - inorganic - aqueous - low
3. Purpose of analysis (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.):
Superfund - Site Inspection

- 2 -

1. Estimated date(s) of collection: week of 1-14-87
5. Estimated date(s) and method of shipment: Daily by overnight carrier.
6. Number of days analysis and data required after laboratory receipt of samples: .
Laboratory should report results within 30 days of receipt of samples.
7. Analytical protocol required (attach copy if other than a protocol currently used in this program):
1) Alkalinity EPA Method 310.1 (Titrimetric, pH 4.5) or Standard Methods, 16th Edition, Method 403 4c and 4d.
2) pH - EPA Method 150.1 (Electrometric) - Initial pH of alkalinity titration is an acceptable procedure so long as sample has not been diluted.
3) Acidity - EPA Method 305.1 (Titrimetric) - Use attached SAS, and its specifications, for acidity. Determine acidity if sample pH < 5.0 or alkalinity < 20 mg/l CaCO₃. Samples will be stored at 4°C until analysis and validation of results.
8. Special technical instruction (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):
Sample holding time should not exceed 14 days from date of collection. Use potentiometric titration to pH 4.5 for alkalinity > 20 mg/l CaCO₃. For concentrations < 20 mg/l, use EPA Method 310.1 (Section 6.3) or Standard Methods, Method 403 4d. Do not use titrant volumes greater than 50 ml. Use only the Methods specified above.
Use Na₂CO₃ to standardize titrant. Standardize the pH meter and the titrant each day. Standardize the pH meter using at least two buffers which bracket the alkalinity end point. Record pH of each sample prior to titration.
9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.
The test procedure used will be clearly identified. Bench records tabulating the order of analysis including pH meter calibration, titrant standardization, sample pH values, lab blanks, samples, lab control standards, duplicates, etc., with resulting titrant volumes or read-outs, will be provided along with calculation worksheets. All records will be legible and sufficient to recalculate all sample concentrations and QA audit results. Report method of titrant standardization.
EPA QC reference samples, or any other reference sample, will be identified as to source, lot number, and sample number. Corresponding "true" or target values and associated 95% confidence limits for analysis results will be provided for all reference samples used.
10. Other (use additional sheets or attach supplementary information, as needed):
11. Name of sampling/shipping contact: David Koubsky
Phone: 612/296-7735

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions or need any assistance, please call the Sample Management Office.

5/030 -4-5/87

Drinking Water (Inorganics)

U.S. Environmental Protection Agency
CLP Sample Management Office
P. O. Box 818, Alexandria, Virginia 22313
PHONE: (703)/557-2490 or FTS/557-2490

QUALITY ASSURANCE BRANCH

SAS Number

DEC 2 1987

SPECIAL ANALYTICAL SERVICES
Client Request

Approved For Release
ENVIRONMENTAL SERVICES DIVISION

☒ Regional Transmittal ☐ Telephone Request

A. EPA Region/Client: V
B. RSCC Representative: Dennis Wesolowski
C. Telephone Number: (312) 886-1971
D. Date of Request: 11-25-87
E. Site Name: Under Ground water Contamination EPA ID# MND981961873

Please provide below a description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability for your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

- General description of analytical service requested: Analysis of Drinking Water
and/or residential well water for metals and cyanide using detection limits lower than
SOW785 (See Attachment II) Six elements are to be determined by GFAA using the method of
standard additions. GFAA analysis of samples free of particulates may be conducted on the
undigested sample.
- Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):
Whole Samples - Inorganic, - aqueous, Low
10 Metals, 10 Cyanide 10 Mercury
- Purpose of analysis (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.):
Superfund Site Inspection

4. Estimated date(s) of collection: week of 4-14-87
5. Estimated date(s) and method of shipment: Daily by overnight carrier
6. Number of days analysis and data required after laboratory receipt of samples:
7. Analytical protocol required (attach copy if other than a protocol currently used in this program): Inorganic analysis as per SOW 785, IFB WA-85-J838, with the exceptions listed in Attachments II & III. ICP emission spectroscopy, mercury, and cyanide analyses follow the SOW mentioned above for sample preparation and analysis protocol with the instrument detection limits and matrix spike levels given in Attachment II and the QC audits as described in Attachment III. GFAA analyses may be run undigested if the samples are free of particulates. If particulates are present the samples are to be digested as per SOW mentioned above. The ICP digest is to be used for Sb analyses, if digestion is required. A detailed set of instructions for conducting the GFAA analyses are included in Attachment III. Special instrument detection limits and matrix spike levels are listed on Attachment II.
8. Special technical instruction (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.): 1) Check the pH of each sample (wide range pH paper is acceptable). If the pH values are outside of the specified limits of SOW785, contact Region V for instructions. 2) Instrument Detection Limits (IDL) of Attachment II are to be met prior to any sample analysis. 3) Spike Ca, Mg, Na and K and all other parameters as per Attachment II. The Spikes for these four analytes shall be to a separate aliquot unless documentation is provided that no contamination results for the other analytes.
- The GFAA protocol is specified in Attachment III. The frequency and limits of certain audits are changed from that given in SOW 785 for all analyses as per Attachment III.
9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.
- All of the deliverables included in SOW785 are required. Also, provide current quarterly XI, XII, XIII for each case. Submit Form VIII separate for each separate parameter analyzed by MSA. Form VIII must be modified to include the slope of each addition as well as the correlation coefficient. Use footnotes on Form I for reporting results, except use IDL of Attachment II for detection limit.
10. Other (use additional sheets or attach supplementary information, as needed):
11. Name of sampling/shipping contact: DAVID Koubsky

Phone: 612 / 296-7735

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions or need any assistance please call the Sample Management Office.

I. DATA REQUIREMENTS

<u>Parameter:</u>	<u>Detection Limit</u>	<u>Precision Desired</u> <u>(+/- % or Conc.)</u>
<u>ICP Metals</u>	<u>See Attachment II</u>	<u>10% RPD or Duplicate</u>
<u>Furnace Metals</u>	<u>" "</u>	<u>Differences < SAS IDL</u>
		<u>of - Attachment II</u>
<u>Mercury, Cyanide</u>	<u>See Attachment II as per</u>	<u>SOW 785</u>

II. QC REQUIREMENTS

<u>Audits Required</u>	<u>Frequency of Audits</u>	<u>Limits* (% or Conc.)</u>
<u>For ICP -AES, Hg, and CN</u>	<u>See 9.A of Attachment III</u>	
<u>GFAA (undigested) As, Cd, Pb, Sb, Se, TI</u>	<u>See 9.B of Attachment III</u>	
<u>GFAA (digested) As, Cd, Pb, Sb, Se, TI</u>	<u>See 9.C of Attachment III</u>	

III. ACTION REQUIRED IF LIMITS ARE EXCEEDED:

Take corrective action and repeat analysis

Contact Jay Thakkar or Dennis Wesolowski

(312)886-1972 (312)886-1971

ATTACHMENT II

Instrument Detection Limit and Spiking Level for Drinking Water

<u>Compound</u>	<u>Required Instrument Detection Limit¹ ug/L</u>			<u>Required Matrix Spike Concentrations ug/L</u>		
	<u>GFAA</u>	<u>ICP</u>	<u>Other</u>	<u>GFAA</u>	<u>ICP</u>	<u>Other</u>
Metal:						
1. Aluminum		100			2000	
2. Antimony ²	5			20	500	
3. Arsenic	5			20		
4. Barium		50			2000	
5. Beryllium		5			50	
6. Cadmium ²	0.5			2	50	
7. Calcium ³		1000			50,000	
8. Chromium		10			200	
9. Cobalt		10			500	
10. Copper		10			250	
11. Iron		100			1000	
12. Lead ²	2			20	500	
13. Magnesium ³		1000			25,000	
14. Manganese		10			200	
15. Mercury			0.2			1.0
16. Nickel		20			400	
17. Potassium ³		2000			20,000	
18. Selenium	2			10		
19. Silver		5			50	
20. Sodium ³		1000			50,000	
21. Thallium	2			20		
22. Vanadium		10			500	
23. Zinc		20			200	
24. Cyanide			10			100

¹ Instrument Detection Limits (IDL) must be met before any samples are analyzed. The Lab may submit their quarterly Form XI with each case if all IDLs meet the detection limits.

² ICP analysis results may only be reported for Sb, Cd and Pb, if the concentration is ≥ 10 times the IDL of instrument used. If ICP results are reported, all ICP audits are required including matrix spike.

³ Report Ca, Mg, Na and K on separate Form V for Matrix Spike if a separate aliquot is used for this spike.

ATTACHMENT III

Special instructions for GFAA and QC requirements for all analyses.

1. Sample aliquots are preserved in the field as follows:

- a) One liter preserved with 5ml/l of 50% HNO_3 to pH < 2 for all metals (excluding Hg).
 - b) One liter sample preserved with 0.5% HNO_3 V/V and 0.05% $\text{K}_2\text{Cr}_2\text{O}_7$ W/V for Mercury.
 - c) One liter of sample preserved with 5ml/l of 6N NaOH to pH \geq 12 for cyanide determination.
2. Analysis of the six metals (specified in Attachment II) by graphite furnace atomic absorption (GFAA) must use the method of standard additions for quantitation.
 3. All of the samples for GFAA metals can be analyzed without digestion if the samples are clean and without any particulates. In this case, a calibration blank, duplicate, ICVS, and CCVS shall be analyzed without digestion.
 4. If any of the samples contain particulate or significant suspended solids, sample aliquots, preparation blank, duplicate, matrix spikes and lab control samples are to be digested per page D-2 of SOW785. The samples digested for ICP analysis are to be used for antimony determination.
 5. No identified field blank may be used as a laboratory duplicate or matrix spike sample

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5/87

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ATTACHMENT III

- 6.1 Zeeman, Smith/Hieftje background correction or equivalent (not Do) is required for Arsenic, Selenium and Antimony or any element with structured background interferences.
- 6.2 The matrix modifiers of SOW785 are mandatory for As & Se.
- 6.3 L'vov platform is allowed.
- 6.4 Any matrix modifiers for Sb, Cd, Pb and Tl must be approved by the Region V Central Regional Laboratory's Contract Project Management Section prior to use and documented with the raw data.
- 6.5 Each sample or QC audit is to be determined by the MSA using the sample or QC audit and then three consecutive spikes.
- 6.6 Each calibration blank and QC audit solution must contain the same nitric acid concentration as the sample (or diluted samples). All solutions analyzed must have their matrix concentrations fully documented in the raw data.
- 6.7 Each analytical determination must have the resulting absorbance clearly recorded and documented in the order of determined.
- 6.8 The data for each MSA determination must show; slope (signal/conc.), intercept and correlation coefficient (r). The results must be reported on Form VIII for all samples and QC audits in order of analysis. Form VIII must be modified to include the above mentioned slope.
- 6.9 Samples and QC audits will be tested in the following order for the method of standard addition quantitation.
 - a) calibration blank and + 3 spikes
 - b) ICVS (provided by EMSL-LV) +3 spikes
 - c) 5 samples, each with 3 spikes
 - d) calibration blank + 3 spikes
 - e) CCVS + 3 spikes
 - f) succeeding sets of 5 samples, cal. blank, and CCVS.
7. Report the correlation coefficient for all MSA analyses. $r > 0.995$ is required for all sample and audit analyses. A correlation coefficient (r) > 0.998 is recommended for the calibration blank or problems will occur with the sample analysis. If $r < 0.995$ or the slope is $< 35\%$ of the initial calibration blank, reanalyze the sample once. If the standard addition again fails these criteria, dilute the sample and reanalyze. If the standard addition again fails, flag the data with a "+".
8. Care must be taken to avoid exceeding the linear range for all GFAA analyses. This problem is especially severe with Cd and Pb. Dilution of the samples may be necessary to avoid this problem.

9. A ICP Metals, Mercury and Cyanide

<u>Audits Required</u>	<u>Frequency of Audits</u>	<u>Limits</u>
ICVS, CCVS, ICP serial dilution, ICP ICS, Distilled CN standard	as per SOW 785	as per SOW 785
Calibration Blank	Beginning of Run and 1 in 10 thereafter	≤ IDL
Preparation Blank	1 in 10 samples	< SAS IDL of Attachment II
Duplicate	1 in 10 samples	10% RPD or Difference is < SAS IDL, 15% For Hg & CN
Matrix Spike (ICP)	1 in 10 samples	85 - 115% Recovery
Matrix Spike (ICP-Ca, Mg, Na, K)*	1 in 10 samples	85 - 115% Recovery
Matrix spike (Hg & CN)	1 in 10 samples	80 - 120%
<u>Digested</u> Lab Control Sample	1 per sample set	85 - 115%
*May be combined with other spike (cf item 8 of SAS)		

9.B G.F.A.A. Undigested Samples

<u>Audits Required</u>	<u>Frequency of Audits</u>	<u>Limits</u>
1) Duplicate	1 in 10 samples	Difference of < SAS IDL of Attachment II or ≤ 10% RPD
2) Calibration Blank	Initially and after every 5 samples	≤ IDL
3) ICVS and CCVS	Initially ICVS, and CCVS after every 5 samples	90% - 110%

9.C GFAA Digested Samples

<u>Audits Required</u>	<u>Frequency of Audits</u>	<u>Limits</u>
1) Calibration Blank	Initially and after every 5 samples	≤ IDL
2) Preparation Blank (Digested)	1 in 10 samples	< SAS IDL of Attachment II
3) Duplicates (Digested)	1 in 10 samples	Difference of < SAS IDL or 10% RPD
4) Matrix Spike (Digested)	1 in 10 samples	85 - 115% Recovery
5) Lab Control Sample (Digested)	1 per set of samples	85 - 115% Recovery
6) ICVS, CCVS	Initially ICVS, and CCVS after every 5 samples	90 - 110% Recovery

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U.S. Environmental Protection Agency
CLP Sample Management Office
P. O. Box 818, Alexandria, Virginia 22313
ONE: (703)/557-2490 or FTS/557-2490

DRINKING WATER (ORGANICS)

SAS Number

SPECIAL ANALYTICAL SERVICES
Client Request

QUALITY ASSURANCE BRANCH

DEC 2 1987

ENVIRONMENT SERVICES DIVISION

☒ XX
☒ XX

Regional Transmittal

☐

Telephone Request

- A. EPA Region/Client: REGION V /
- B. RSCC Representative: Dennis Wesolowski
- C. Telephone Number: (312) 886-1971
- D. Date of Request: 11-25-87
- E. Site Name: Hader Groundwater Contamination EPA ID# MND98/96/873

Please provide below a description of your request for Special Analytical Services under the Contract Laboratory Program. In order to most efficiently obtain laboratory capability for your request, please address the following considerations, if applicable. Incomplete or erroneous information may result in delay in the processing of your request. Please continue response on additional sheets, or attach supplementary information as needed.

1. General description of analytical service requested: Analysis of drinking water /
residential wells - for volatiles, semi-volatiles and pesticide/PCB with low
quantitation limits.
2. Definition and number of work units involved (specify whether whole samples or fractions; whether organics or inorganics; whether aqueous or soil and sediments; and whether low, medium, or high concentration):
10 whole - organic - aqueous - low
10 - VOA , 10 - Semi-volatile & 10 - Pesticide / PCB All Low
3. Purpose of analysis (specify whether Superfund (Remedial or Enforcement), RCRA, NPDES, etc.):
Superfund Site Inspection

4. Estimated date(s) of collection: Week of 1-14-87
5. Estimated date(s) and method of shipment: Daily by overnight carrier
6. Number of days analysis and data required after laboratory receipt of samples:
7 days for analysis. Final report and data due within 15 days of sample receipt.
7. Analytical protocol required (attach copy if other than a protocol currently used in this program):

Organic Analysis IFB WAB5-J664

8. Special technical instruction (if outside protocol requirements, specify compound names, CAS numbers, detection limits, etc.):

1. Exceptions to Organic IFB - Attachment I

2. Required low level quantitation limits - Attachment II

3. Requirements for determining quantitation limits: Easily recognizable spectra for all compounds using 10 ng injection for ABNs and 1.5 ug/L for VOAs.

4. Initial calibrations: %RSD for RFs should be <40 for each VOA and ABN compound before beginning analyses.

5. Continuing calibration: Run daily calibration standard before running analyses. %D should be <25 for all compounds in both VOAs and ABNs. If any %Ds are greater than 25%, the standard should be reinjected. If still out, rerun 3 point curve.

Exception: The %D for bromomethane, chloroethane, chloromethane and vinyl chloride must be ≤35.

9. Analytical results required (if known, specify format for data sheets, QA/QC reports, Chain-of-Custody documentation, etc.). If not completed, format of results will be left to program discretion.

All deliverables included in the IFB are required including instrument quantitation

limit determinations. The lab will notify the Region prior to diluting any sample. If Regional approval is given to dilute, all of the data will be submitted; data for each dilution will be reported on separate OADS forms.

10. Other (use additional sheets or attach supplementary information, as needed):

11. Name of sampling/shipping contact: David Koubsky

Phone: 612 / 296 - 7735

I. DATA REQUIREMENTS

<u>Parameter:</u>	<u>Detection Limit</u>	<u>Precision Desired</u> <u>(+/- % or Conc.)</u>
<u>Organics</u>	<u>See Attachment II</u>	<u>Attachment I</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

II. QC REQUIREMENTS

<u>Audits Required</u>	<u>Frequency of Audits</u>	<u>Limits* (% or Conc.)</u>
<u>Organics - As in IFB</u>	<u>As in IFB</u>	<u>Attachment I</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

III. ACTION REQUIRED IF LIMITS ARE EXCEEDED:

<u>Contact Chuck Elly or Dennis Wesolowski</u>	
<u>(312) 353-9087</u>	<u>(312) 886-1971</u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>

Please return this request to the Sample Management Office as soon as possible to expedite processing of your request for special analytical services. Should you have any questions or need any assistance, please call the Sample Management Office.

Attachment I

VOA - Increase sample volume up to 20 ml to meet quantitation limits.
Initial Calibration: 5ug/L, 10ug/L, 20ug/L for all compounds except for acrolein and acrylonitrile, which should be run at 200ug/L, 300ug/L, 500ug/L; vinyl chloride, chloromethane, bromomethane, acetone, 2-butanone, 2-hexanone, and vinyl acetate, which should be run at 50ug/L, 100ug/L, 150ug/L.

Continuing Calibration: 10ug/L except all those compounds that have a detection limit ≥ 3.0 ug/L but < 10 ug/L which are to be run at 20ug/L.
Acrolein and acrylonitrile should be run at 300ug/L.
Vinyl chloride, chloromethane, bromomethane, acetone, 2-butanone, 2-hexanone, and vinyl acetate should be run at 50ug/L.

Surrogates: As in IFB but at 10 ug/L with percent recovery 80 - 120%.
Matrix spike: As in IFB but at 10 ug/L with percent recovery 80 - 120%.
All RFs must be ≥ 0.05 .

ABN - Extract the entire liter bottle, rinse cap & bottle, and add to sample.
Decrease extract volume to help meet quantitation limits.

Initial Calibration: 20, 50, and 100 total nanograms.

Continuing Calibration: 20 nanograms except for the following-

Benzoic acid, 2,4 - dinitrophenol, 2,4,5-trichlorophenol,
all three nitroaniline isomers, 4-nitrophenol, 4,6-dinitro-
2-methylphenol and pentachlorophenol which are to be
injected at 50 nanograms.

* Surrogates: 20 ppb BN compounds with % recoveries as listed in IFB.
40 ppb Acid compounds with % recoveries as listed in IFB.
* Matrix Spike: 20 ppb BN compounds with % recoveries as listed in IFB.
40 ppb Acid compounds with % recoveries as listed in IFB;
All RFs must be ≥ 0.05 .

Pesticide/PCB - Extract the entire liter bottle, rinse cap & bottle, and add
to sample. Decrease extract volume to help meet quantitation limits.

Calibration: As in IFB using an attenuation setting capable of achieving
the quantitation limits in Attachment II. 72 hour run sequence as in IFB.

Surrogates: Use 20% of the IFB amounts with % recoveries as listed in IFB.

Matrix Spike: Use 20% of the IFB amounts with % recoveries as listed in IFB.

NOTE: The IFB limits for the RPDs for the matrix spike/matrix spike duplicate results apply for all of the organics analyses.
For corrective action when surrogates are outside the SAS required recovery limits, see the IFB for re-extraction/re-analysis requirements.
* The surrogate and matrix spike amounts listed are the concentrations in the liter of sample.

ATTACHMENT II (1of4)

TABLE 1 (ALL UNITS ARE MICROGRAMS/LITER)

PARAMETER	CAS #	QUANTITATION LIMITS
BENZENE	71-43-2	1.5
BROMODICHLOROMETHANE	75-27-4	1.5
BROMOFORM	75-25-2	1.5
BROMOMETHANE	74-83-9	10
CARBON TETRACHLORIDE	56-23-5	1.5
CHLOROBENZENE	106-90-7	1.5
CHLOROETHANE	75-00-3	1.5
2-CHLOROETHYL VINYL ETHER	110-75-8	1.5
CHLOROFORM	67-66-3	1.5
CHLOROMETHANE	74-87-3	10
DIBROMODICHLOROMETHANE	124-48-1	1.5
1,1-DICHLOROETHANE	75-34-3	1.5
1,2-DICHLOROETHANE	107-06-2	1.5
1,1-DICHLOROETHENE	75-35-4	1.5
TOTAL 1,2-DICHLOROETHENES	156-60-5	1.5
1,2-DICHLOROPROPANE	78-87-5	1.5
cis-1,3-DICHLOROPROPENE	10061-01-5	2
trans-1,3-DICHLOROPROPENE	10061-02-6	1
ETHYL BENZENE	100-41-4	1.5
METHYLENE CHLORIDE (*)	75-09-2	1
1,1,2,2-TETRACHLOROETHANE	79-34-5	1.5
TETRACHLOROETHENE	127-18-4	1.5
TOLUENE (*)	108-88-3	1.5
1,1,1-TRICHLOROETHANE	71-55-6	1.5
1,1,2-TRICHLOROETHANE	79-00-5	1.5
TRICHLOROETHENE	79-01-6	1.5
VINYL CHLORIDE	75-01-4	10
ACROLEIN	107-02-8	100
ACETONE (*)	67-64-1	75
ACRYLONITRILE	107-13-1	50
CARBON DISULFIDE	75-15-0	3
2-BUTANONE	78-93-3	(50)
VINYL ACETATE	108-05-4	15
4-METHYL-2-PENTANONE	108-10-1	(3)
2-HEXANONE	519-78-6	(50)
STYRENE	100-42-5	1
m-XYLENE	106-38-3	2
o-XYLENE **	95-47-6	
p-XYLENE **	106-42-3	2.5

* COMMON LABORATORY SOLVENT
BLANK LIMIT IS 5x METHOD DETECTION LIMIT

** THE o-XYLENE AND p-XYLENE ARE REPORTED AS A TOTAL OF THE TWO

ATTACHMENT II (2of4)

TABLE 1 (ALL UNITS ARE MICROGRAMS/LITER)

PARAMETER	CAS #	QUANTITATION LIMIT
BIS(2-CHLOROETHYL)ETHER	111-44-4	1.5
PHENOL	108-95-2	2
2-CHLOROPHENOL	95-57-8	2
1,3-DICHLOROBENZENE	541-73-1	2
1,4-DICHLOROBENZENE	106-46-7	2
1,2-DICHLOROBENZENE	95-50-1	2.5
BENZYL ALCOHOL	100-51-6	2
BIS(2-CHLOROISOPROPYL) ETHER	39638-32-9	2.5
2-METHYLPHENOL	95-48-7	1
HEXACHLOROETHANE	67-72-1	2
N-NITROSODIPROPYLAMINE	621-64-7	1.5
NITROBENZENE	98-95-3	2.5
4-METHYLPHENOL	106-44-5	1
ISOPHORONE	78-59-1	2.5
2-NITROPHENOL	88-75-5	2
2,4-DIMETHYLPHENOL	105-67-9	2
BIS(2-CHLOROETHOXY)METHANE	111-91-1	2.5
2,4-DICHLOROPHENOL	120-83-2	2
1,2,4-TRICHLOROBENZENE	120-82-1	2
NAPHTHALENE	91-20-3	2
4-CHLOROANILINE	106-47-8	2
HEXACHLOROBUTADIENE	87-68-3	2.5
BENZOIC ACID	65-85-0	(30)
2-METHYLNAPHTHALENE	91-57-6	2
4-CHLORO-3-METHYLPHENOL	59-50-7	1.5
HEXACHLOROCYCLOPENTADIENE	77-47-4	2
2,4,6-TRICHLOROPHENOL	88-06-2	1.5
2,4,5-TRICHLOROPHENOL	95-95-4	1.5
2-CHLORONAPHTHALENE	91-58-7	1.5
ACENAPHTHYLENE	208-96-8	1.5
DIMETHYL PHTHALATE	131-11-3	1.5
2,6-DINITROTOLUENE	606-20-2	1
ACENAPHTHENE	83-32-9	1.5
3-NITROANILINE	99-09-2	2.5
DIBENZOFURAN	132-64-9	1
2,4-DINITROPHENOL	51-28-5	(15)
2,4-DINITROTOLUENE	121-14-2	1

NOTE: Limits are for reagent water.

ATTACHMENT II (3of4)

TABLE 1 (CONTINUED) (ALL UNITS ARE MICROGRAMS/LITER)

PARAMETER	CAS #	QUANTITATION
		LIMIT
FLUORENE	86-73-7	1
4-NITROPHENOL	100-02-7	1.5
4-CHLOROPHENYL PHENYL ETHER	7005-72-3	1
DIETHYL PHTHALATE	84-66-2	1
4,6-DINITRO-2-METHYLPHENOL	534-52-1	(15)
N-NITROSODIPHENYLAMINE *	86-30-6	
DIPHENYLAMINE *	122-39-4	1.5
4-NITROANILINE	100-01-6	3
4-BROMOPHENYL PHENYL ETHER	101-55-3	1.5
HEXACHLOROBENZENE	118-74-1	1.5
PENTACHLOROPHENOL	87-86-5	2
PHENANTHRENE	85-01-8	1
ANTHRACENE	120-12-7	2.5
DI-n-BUTYL PHTHALATE	84-74-2	2
FLUORANTHENE	206-44-0	1.5
PYRENE	129-00-0	1.5
BUTYL BENZYL PHTHALATE	85-68-7	3.5
CHRYSENE **	218-01-9	
BENZO(a)ANTHRACENE **	56-55-3	1.5
BIS(2-ETHYLHEXYL) PHTHALATE	117-81-7	1
DI-n-OCTYL PHTHALATE	117-84-0	1.5
BENZO(b)FLUORANTHENE ***	205-99-2	
BENZO(k)FLUORANTHENE ***	207-08-9	1.5
BENZO(a)PYRENE	50-32-8	2
INDENO(1,2,3-cd)PYRENE	193-39-5	3.5
DIBENZO(a,h)ANTHRACENE	53-70-3	2.5
BENZO(g,h,i)PERYLENE	191-24-2	4
2-NITROANILINE *	88-74-4	1

* THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

** THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

*** THESE TWO PARAMETERS ARE REPORTED AS A TOTAL

VALUES IN PARENTHESES ARE ESTIMATES. ACTUAL VALUES ARE BEING DETERMINED AT THIS TIME.

NOTE: Limits are for reagent water.

ATTACHMENT II (4of4)
TABLE 1 (ALL UNITS ARE MICROGRAMS/LITER)

PARAMETER	CAS #	QUANTITATION LIMIT
ALDRIN	309-00-2	0.005
alpha BHC	319-84-6	(0.010)
beta BHC	319-85-7	(0.005)
delta BHC	319-86-8	(0.005)
gamma BHC (LINDANE)	58-89-9	0.005
CHLORDANE	57-74-9	(0.020)
4,4'-DDD	72-54-8	(0.020)
4,4'-DDE	72-55-9	(0.005)
4,4'-DDT	50-29-3	0.020
DIELDRIN	60-57-1	0.010
ENDOSULFAN I	959-98-8	0.010
ENDOSULFAN II	33213-65-9	0.010
ENDOSULFAN SULFATE	1031-07-8	(0.10)
ENDRIN	72-20-8	0.010
ENDRIN ALDEHYDE	7421-93-4	(0.030)
ENDRIN KETONE	53494-70-5	(0.030)
HEPTACHLOR	76-44-8	0.030
HEPTACHLOR EPOXIDE	1024-57-3	0.005
4,4'-METHOXYCHLOR	72-43-5	0.020
TOXAPHENE	8001-35-2	(0.25)
PCB-1242	53469-21-9	(0.10)
PCB-1248	12672-29-6	(0.10)
PCB-1254	11097-69-1	(0.10)
PCB-1260	11096-82-5	(0.10)

VALUES IN PARENTHESES ARE ESTIMATES. ACTUAL VALUES ARE CURRENTLY BEING DETERMINED.

NOTE: Limits are for reagent water.